## IV. REMARKS

Claims 10-13 have been rejected under 35 U.S.C. 102 as being anticipated by Dee, or in the alternative by Wilde or in the alternative by Lifka. Claims 10-12 and 16 have also been rejected under 35 U.S.C. 103 as being obvious over Lee et al. (hereinafter Lee) in view of anyone of Box et al (hereinafter Box), Reichard et al. (hereinafter Reichard) and Stram, Jr., et al. (hereinafter Stram). Applicant respectfully disagrees.

Claim 10 calls for an air breathing gas turbine engine, with first and second independently rotatable rotors, wherein the first rotor has a first compression portion, a first turbine portion and combustion chamber portion, the compression portion surrounding the turbine portion of the first rotor, and the combustion chamber portion being nested at least in part within the turbine portion of the first rotor. Neither Dee, Wilde '419, Lifka nor Lee disclose or suggest the features recited in claim 10.

In Figs. 1-2, Dee discloses a turbine engine with a rotor 1 that has a hub 3, an inner annular member (formed by turbine blades 5 and ceramic tube 6) and outer annular member (formed by tubular element 7, compressor blades 8 and tubular element 9). The outer annular member (7-9) surrounds the inner annular member (5-6). The hub 3 of rotor 1 houses centrifugally operable clutches 4 (see Fig. 1). The engine in Dee has a combustion chamber 19. The combustion chamber 19 in Dee is not part of the rotor. Conversely, the rotor 1 in Dee clearly has no combustion chamber portion as called for in claim 10. Dee fails to disclose a rotor with a compression portion, turbine portion and combustion chamber portion, much less a rotor with a combustion chamber portion being nested at least in part within the turbine portion

as called for in claim 10. Dee does not anticipate claim 10. Claims 10-27 are patentable over Dee.

Wilde '419 discloses a gas turbine ducted fan engine 10 with conventional low pressure shaft 41, and high pressure shaft 44. The conventional low pressure shaft 41 has corresponding low pressure compressor 42 and turbine 43. The conventional high pressure shaft 44 has corresponding compressor 45 and turbine 46. As seen in Fig. 1, the combustion chamber (c.c.) is separate from either shaft 41, 44 and is fixed. As in Dee, the gas turbine in Wilde has no rotor with a combustion chamber portion, much less with a combustion chamber portion nested within a turbine portion of the rotor as called for in claim 10. Claims 10-27 are patentable over Wilde '419. Lifka discloses a hybrid engine with a rocket engine 2 and turbo air jet engine 1. The hybrid engine in Lifka has a gas generator 4 operating with ($LH_2$) and (LOX) as oxidizer. The gas generator 4 is not air breathing. The Lifka hybrid engine has rotors 11, 12, 13. Rotors 11, 12, 13 each have compressor and turbine sections, and are each located around the gas generator 4. Nevertheless, the gas generator 4 is independent (i.e. separate and apart) from any of the rotors 11, 12, 13 in Lifka, and is fixed. Thus, none of the rotors in Lifka have combustion chamber portion. Lifka fails to disclose an air breathing gas turbine engine rotor having a combustion chamber portion, much less having a combustion chamber portion of the rotor nested at least in part within a turbine portion of the rotor as called for in claim 10. Claims 10-27 are patentable over Lifka and should be allowed.

Lee discloses a gas turbine engine with a rotating disk 1. The disk 1 has compressor blade and turbine blades (4, 8). The engine in Lee has a combustion chamber 3. The combustion chamber

3 in Lee is located within the rotating disk, but the combustion chamber is fixed to the wall of the housing. The combustion chamber 3 in Lee is not part of the disk, and conversely disk 1 has no combustion chamber portion. Further, disk 1 is the only rotatable portion of the engine in Lee. Lee fails to disclose first and second rotors each being independently rotatable, nor does it disclose a rotor (of at least two independently rotatable rotors) with a compression portion, a turbine portion and a combustion chamber portion as called for in claim 10. Claims 10-27 are patentable over Lee and should be allowed.

Claims 7-9 have also been rejected under 35 U.S.C. 103 as being obvious over Lee in view of anyone of Box, Reichard and Stram. Claims 7-8 have also been rejected under 35 U.S.C. 103 as being obvious over Lifka in view of anyone of Box, Reichard and Stram. Applicant respectfully disagrees.

Claim 7 calls for an air breathing engine having a combustion chamber section and an igniter cartridge connected to the combustion chamber section for feeding gases into the combustion chamber section, wherein the starter cartridge has a base shaped to define a toroidal region of the combustion chamber section. Neither Lee, Box, Reichard nor Stram disclose or suggest the features recited in claim 7. In Fig. 1, Lee disclose a combustion chamber 3, with what appears to be a toroidal region. Lee fails to disclose an igniter cartridge. Box, Reichard and Stram fail to correct the deficiencies of Lee. Box discloses a combustion chamber 20 with a solid fuel element 50 and igniter 52 located therein. The combustion chamber 20 in Box has a general annular (but not necessarily toroidal) configuration. The solid fuel element 50 and igniter 52 (shown schematically in Fig. 1 of Box having a generally rectangular shape) are located in an outer

wall of the combustion chamber. Box fails to disclose or suggest that the solid fuel element and igniter 50, 52 are located in a toroidal portion of the combustion chamber, much less that the solid fuel element/igniter 50, 52 has a base shaped to define a toroidal region of the combustion chamber. Thus, modifying Lee in view of the disclosure in Box will not provide the features called for in claim 7. Combining Lee with Box at best will result in the placement of a solid fuel element with igniter (as in Box) into an outer wall of the combustion chamber in Lee (as there is no disclosure in Box of locating the solid fuel element/igniter in a toroidal region of the combustion chamber). Arguably, even if the combination of Lee and Box was to result in a solid fuel element/igniter (as per Box) being located in the toroidal region of the combustion chamber of Lee, this is still different than what is called for in claim 7. Claim 7 does not merely call for mounting or positioning of an igniter cartridge in the toroidal region of the combustion chamber. Rather, claim 7 calls for the igniter cartridge having a base shaped to define a toroidal region of the combustion chamber. In other words, it is the base of the igniter cartridge that is shaped to define the toroidal region of the combustion chamber (and not merely that the igniter is located in the toroidal region of the combustion chamber). Nowhere does Lee or Box disclose or suggest the features recited in Claim 7. Reichard and Stram are similar to Box in that they also merely disclose a starter cartridge placed somewhere within the combustion chamber. However, as noted above, claim 7 calls for something very different (not just the mere addition of a starter cartridge into the toroidal section of a combustion chamber). Lee, Box, Reichard and Stram fail to disclose or suggest the features recited in claim 7. Claims 7-9 are patentable over the cited prior art and should be allowed.

Lifka, Box, Reichard and Stram also fail to disclose or suggest the features recited in claim 7. In addition to the features noted before, claim 7 calls for an air breathing gas turbine engine with the turbine section surrounding the combustion chamber section (of the air breathing engine) so that at least part of the combustion chamber section is nested within the turbine section. This is not disclosed in either, Box, Stram, Reichard nor Lifka. The turbo air jet engine 1 of the hybrid (air turbo - rocket) engine in Lifka has a combustion chamber 15 that is neither surrounded by nor nested in any way in the turbine section (of rotors 11-13). The gas generator 4 is not a combustion chamber of an air breathing gas turbine engine as it receives its oxidizer in the form of LOX. Furthermore, gas generator 4 appears to lack a toroidal section. As seen in Fig. 2 of Lifka, gas generator 4 has valving mechanism 6, 8 at the front end of the gas generator 4. What appears to be a toroidal region in front of the gas generator 4 (see Fig. 2), is thus outside of and not part of the gas generator 4. Gas generator 4 in Lifka has no toroidal region. Moreover, as disclosed before Box, Reichard and Stram fail to disclose or suggest a nested combustion chamber, nor a starter cartridge having a base shaped to define a toroidal region of the combustion chamber. Neither Lifka, Box, Reichard nor Stram disclose or suggest the features recited in claim 7, and hence the combination of Lifka with either one of Box, Reichard or Stram can not provide features that are not disclosed or suggested in any of the references. Claims 7-9 are patentable over the cited prior art and should be allowed.

Claims 1-27 have been rejected under the judicially created doctrine of obviousness type double patenting as being unpatentable over claims 1-27 of U.S. Patent No. 6,647,707. The

Applicant is filing herewith a Terminal Disclaimer disclaiming the excess term on a patent issued from the instant application over the term of commonly owned U.S. Patent 6,647,707.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

A check in the amount of $575.00 is enclosed for a three month extension of time and Terminal Disclaimer fee. The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,


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3/18/05
Date

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